SERVICE MANUAL

MOYNO® 500 PUMPS

SANITARY/HYGIENIC MOTORIZED

331, 332, 333 AND 344 MODELS

SANITARY MODELS

These pumps include housings polished to a #4 finish both inside and out. The Durametallic FRO mechanical seal has carbon/ceramic faces. The elastomers meet the FDA requirement for food contact. These pumps meet 3A requirements. The universal joint may be dismantled for cleaning.

HYGIENIC MODELS

These pumps provide the quick disassembly features of the sanitary version for easy cleaning. The housings are 316 stainless steel construction, however they are not polished. These pumps utilize rubber-covered universal joints. The stators are available in non-FDA nitrile, EPDM and fluoroelastomers. The mechanical seals are rubber bellows type with carbon/ceramic faces.

INSTALLATION

Mounting Position. Pump may be mounted in any position. When mounting vertically, it is necessary to keep the motor above the pump to prevent possible seal leakage into the bearings.

Pre-Wetting. Prior to connecting the pump, wet the pump elements and mechanical seal by adding fluid to be pumped into suction and discharge ports. Turn the pump over several times in a clockwise direction to work fluid into the pump elements.

Piping. Piping to the pump should be self-supporting to avoid excessive strain on pump housings.

Electrical. Follow the wiring diagram on the motor nameplate or inside the terminal box for the proper connections. The wiring should be direct and conform to local electrical codes. Check power connections for proper voltage. Voltage variations must not exceed ± 10% of nameplate voltage. The motor is provided with internal automatic overload protection.

To prevent damage to the pump, pump rotation must be clockwise when facing the pump from the motor end.

OPERATION

Self-Priming. With wetted pumping elements, the pump is capable of 25 feet of suction lift with pipe size equal to port size. Be sure suction lines are air tight or the pump will not self prime. Self-priming capabilities will vary due to fluid viscosity.

DO NOT RUN DRY. The unit depends on liquid pumped for lubrication. For proper lubrication, the flow rate should be at least 10% of rated capacity.

Pressure and Temperature Limits. See Table 1 for maximum discharge pressure of each model. The unit is suitable for service at temperatures shown in Table 2.

Storage. Always drain the pump for extended storage periods by removing the suction housing and stator.

Caution: Suction pressure should never be greater than discharge pressure.

Table 1. Pump Data

Pump Models	331	332	333	344
Discharge Pressure (psig) (maximum)	150	100	50	40

Table 2. Temperature Limits

Elastomer	Temperature Limits
*NBR (Nitrile)	10˚-160˚F
*EPDM	10˚-210˚F
FPM (Fluoroelastomer)	10˚-240˚F

*FDA Food Grade on Sanitary Models. FDA Fluoroelastomer not currently available. Call factory.

TROUBLESHOOTING

WARNING: Before making adjustments, disconnect power source and thoroughly bleed pressure from system prior to disassembly. Failure to do so could lead to electric shock or serious bodily harm.

Failure To Pump.

1. Motor will not start: Check the power supply. Voltage must be ± 10% of nameplate rating when the motor is in locked rotor condition. Check for faulty capacitor on 1-phase models.

2. Motor runs and thermally kicks out: Check for excessive discharge pressure. Check for defective centrifugal switch on 1-phase models. Increase ventilation to motor. Do not use less than #14 wire size.

3. Stator torn; possible excessive pressure: Replace stator; check pressure at discharge port.

4. Flexible joint broken; possible excessive pressure: Replace joint, check pressure at the discharge port.

5. Wrong rotation (3-phase only): Rotation must be clockwise when facing pump from motor end. Reverse the connections of any two line leads to the motor.

6. Excessive suction lift or vacuum.

Pump Overloads.

1. Excessive discharge pressure: Check pressure at discharge port for maximum ratings given in Table 1.

2. Fluid viscosity too high: Limit fluid viscosity to 100 CP or 500 SSU.

Noisy Operation.

1. Excessive suction lift or vacuum: Maximum suction lift is 25 feet for water.

2. Suction line too small: Check pipe size. Be sure lines are free from obstructions.

3. Pump cavitates: Pump speed is 1725 rpm. Viscosity of fluid should not exceed 100 CP or 500 SSU.

4. Flexible joint worn: Replace joint. Check pressure at the discharge port.

5. Insufficient mounting: Mount securely to a firm base. Vibration induced noise can be reduced by using mount pads.

Seal Leakage.

1. Leakage at startup: If leakage is slight, allow pump to run several hours to let faces run in.

2. Persistent seal leakage: Faces may be cracked from freezing or thermal shock. Replace the seal.

Pump Will Not Prime.

1. Air leak on suction side: Check pipe connections.

PUMP DISASSEMBLY

WARNING: Before disassembling pump, disconnect power source and thoroughly bleed pressure from system. Failure to do so could result in electric shock or serious bodily harm.

1. Remove suction and discharge piping.

2. Remove clamp (112) holding suction housing (2) to discharge housing (1). Remove suction housing (2) and stator (21).

3. Remove rotor (22) from flexible joint (24) by turning counterclockwise (RH thread).

4. Flexible joint (24) can be removed from motor shaft by using a 3/16 Allen wrench in end of joint and turning counterclockwise. Sanitary joints can be further disassembled by removing the snap rings, allowing the pins to be removed.

5. Slide mechanical seal (69) off motor shaft.

6. Remove discharge housing (1) from adapter flange (12) by removing screws (112B).

7. Carefully pry seal out of discharge housing (1). If any parts of mechanical seal are worn or broken, the complete seal assembly should be replaced. Seal components are matched parts and are not interchangeable.

8. Remove adapter flange (12) from motor (70) by removing screws (112A).

9. Remove slinger ring (77).

PUMP ASSEMBLY

1. Install slinger ring (77).

2. Attach adapter flange (12) to motor housing using screws (112A).

3. Attach discharge housing (1) to adapter flange (12) using screws (112B). Be sure to center seal bore on shaft.

4. Install mechanical seal (69) in discharge housing (1) using the following procedure:

a. Clean and lubricate sealing faces using clean vegetable oil (not grease).

Caution: Do not use oil on EPDM parts. Substitute glycerin, soap and water, or approved lubricate.

b. Lubricate outer surfaces of the seal seat, and push assembly over the motor shaft and into the discharge housing (1) seating it firmly and squarely.

c. After cleaning and lubricating the shaft, slide the seal body along the motor shaft until it meets the seal seat.

d. Install seal spring and spring retainer on shaft.

5. Assemble sanitary joint by sliding center section between two ends. Insert pins and retain with snap rings. Thread flexible joint (24) into motor shaft in a clockwise direction (RH thread). Tighten with 3/16 Allen wrench.

6. Thread rotor (22) onto flexible joint (24) in a clockwise direction (RH thread).

7. Slide stator (21) on rotor (22). On 331 & 332 models, insert rounded end of stator ring (135) into end of stator prior to installing stator on rotor.

8. Secure stator (21) and suction housing (2) to discharge housing (1) using clamp (112).

9. Lubricate rotor and stator by filling suction housing and discharge housing with fluid to be pumped.

10. Connect suction and discharge piping and power source.

PARTS LIST

To determine part numbers for all parts except standard motors, enter table with item number from pump illustration. Then locate part number under applicable model number (first three digits). Parts listed down the center are applicable to all pump models.

Item		Pump Model Numbers			
No.	Description	331	332	333	344
1	Discharge Housing	3403921007 Sanitary Models, 3403922007 Hygienic Models			
2	Suction Housing	3403919007 Sanitary Models, 3403920007 Hygienic Models			
12	Adapter	3308809000			
*22	Rotor 316 SS, Hygienic	3202933000	3202942000	3202936000	3202934000
*22	Rotor 316 SS, Sanitary	3208576000	3208577000	3208578000	3208579000
70	Standard Motor, Hygienic	3304529003- .5HP, 115/230V, 1PH, TEFC			
70	Standard Motor, Sanitary	3308807003- .5HP, 115/230V, 1PH, Washdown duty			
70	Motor DC, Hygienic	3308808000 .5HP, 90VDC, TENV			
70	Motor DC, Sanitary	3308808003 .5HP, 90VDC, TENV, Washdown			
77	Slinger Ring	3206382000			
112	Clamp	3621775000			
135	Stator Ring, Hygienic	3207812000		—	
135	Stator Ring, Sanitary	3621774001		—	
137	Gasket .62 OD	3308806101 Nitrile, 3308806301 EPDM, 3308806501 FPM			
140	Gasket .78 OD	3308806102 Nitrile, 3308806302 EPDM, 3308806502 FPM			
141	Seal Driver	3308801015 Sanitary only			

PARTS LIST, SANITARY MODELS

Item		Sanitary 331 Models			Sanitary 332 Models		
No.	Description	NBR	EPDM	FPM	NBR	EPDM	FPM
*21	• Stator	3403501110	3403501300	3403501520	3403502110	3403502300	3403502520
*24	• Joint Assy.	3308810017	3308810017	3308810017	3308810017	3308810017	3308810017
*69	• Seal	3208580000	3208581000	3208582000	3208580000	3208581000	3208582000
Item		**Sanitary 333 Models**			**Sanitary 344 Models**		
No.	**Description**	**NBR**	**EPDM**	**FPM**	**NBR**	**EPDM**	**FPM**
*21	• Stator	3403503110	3403503300	3403503520	3403504110	3403504300	3403504520
*24	• Joint Assy.	3308810017	3308810017	3308810017	3308810017	3308810017	3308810017
*69	• Seal	3208580000	3208581000	3208582000	3208580000	3208581000	3208582000

* Recommended Spare Parts

NBR = Nitrile (FDA Food Grade)
EPDM = Ethylene-Propylene-Diene Terpolymer (FDA Food Grade, not suitable for 3A or dairy requirements)
FPM = Fluoroelastomer (Food Grade not currently available. Call factory)

PARTS LIST, HYGIENIC MODELS

Item No.	Hygienic 331 Models				Hygienic 332 Models		
	Description	NBR	EPDM	FPM	NBR	EPDM	FPM
*21	• Stator	3403501120	3403501320	3403501520	3403502120	3403502320	3403502520
*24	• Joint	3208574001	3208574003	3208574005	3208574001	3208574003	3208574005
*69	• Seal	3202424000	3621792000	3206501000	3202424000	3621792000	3206501000
Item No.	**Hygienic 333 Models**				**Hygienic 344 Models**		
	Description	**NBR**	**EPDM**	**FPM**	**NBR**	**EPDM**	**FPM**
*21	• Stator	3403503120	3403503320	3403503520	3403504120	3403504320	3403504520
*24	• Joint	3208574001	3208574003	3208574005	3208574001	3208574003	3208574005
*69	• Seal	3202424000	3621792000	3206501000	3202424000	3621792000	3206501000

* Recommended Spare Parts

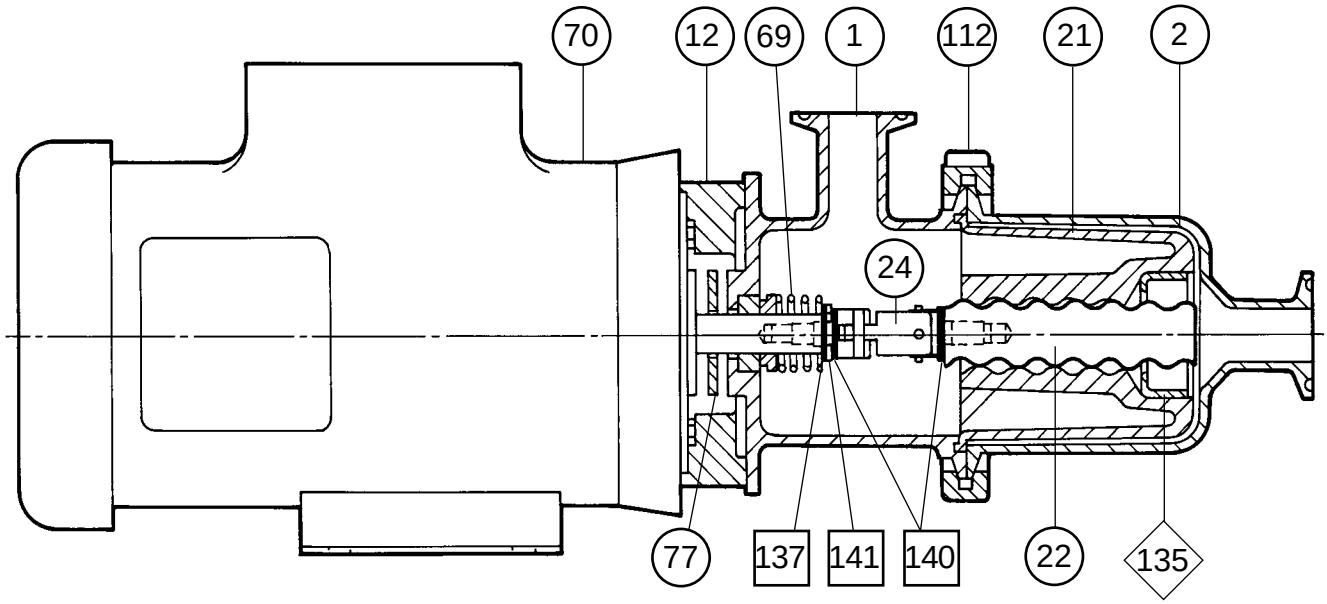
NBR = Nitrile
EPDM = Ethylene-Propylene-Diene Terpolymer
FPM = Fluoroelastomer

ABRASION-RESISTANT SEALS
(Hygienic only)

Elastomer	All 331-344 Models
NBR	3206460000
EPDM	3206502000
FPM	3206503000

Sanitary Joint Assy.		
Assy. No. 3308810017		
P/N	**Description**	**Qty.**
3207314015	Pin	2
3208575015	Snap Ring	2
3308802017	Joint End	2
3308803017	Joint Center	1

Required Hardware, Not Shown		
P/N	**Description**	**Qty.**
3206715007	Screw	4
6230012410	Lock Washer	4
6191522160	Screw	4
6230012400	Lock Washer	4



When ordering parts, please specify pump model number, pump serial number, part number, part description and quantity.

◇ - Use only on 331 & 332 Models.

□ - Use only on Sanitary Models.

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